

UNCLASSIFIED

PROCESSING DATE--13NOV70

2/2 013  
CIRC ACCESSION NO--AP0129986  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE WORK DEALS WITH THE EPR STUDY OF THE NATURE OF PARAMAGNETIC CENTERS ARISING UNDER GAMMA IRRADIATION AT 77 K IN SINGLE CRYSTALS OF HYDROCHLORIDE L TYROSINE. THE EPR SPECTRUM OF A GAMMA IRRADIATED SINGLE CRYSTAL OF HYDROCHLORIDE L TYROSINE IS COMPOSED OF 4 COMPONENTS, A BROAD ASYMMETRIC DOUBLET, A SINGLET, AND A MULTIPLET. THE PARAMAGNETIC CENTER RESPONSIBLE FOR THE 1ST EPR SIGNAL IS  $\text{Cl}^-$ . AT 77 K THE IONIZATION OF THE MOLECULE TAKES PLACE, WHICH RESULTS IN THE FORMATION OF ANION RADICALS (EPR SINGLET) OF TYROSINE WITH THE LOCALIZATION OF UNPAIRED ELECTRONS ON THE BENZENE RING. THE BREAKAGE OF THE C-N BOND IS A SECONDARY ONE DUE TO THE TRAPPING OF THE ELECTRON BY THE CHARGED AMINO GROUP OF THE TYROSINE MOLECULE (EPR MULTIPLET).  
FACILITY: INST. BIOL. PHYS., ACAD. SCI. USSR,  
PUSHCHINO-ON-OKA, USSR.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--STRUCTURE OF PARAMAGNETIC CENTERS AND THEIR PHOTOCHEMICAL  
TRANSFORMATIONS IN A GAMMA IRRADIATED SINGLE CRYSTAL OF CYSTEINE  
AUTHOR--KRIVENKO, V.G., KAYUSHIN, L.P., PULATOVA, M.K.  
COUNTRY OF INFO--USSR  
SOURCE--KHIM. VYS. ENERG. 1970, 4(1), 49-55  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY  
TOPIC TAGS--AMINO ACID, GAMMA IRRADIATION, EPR SPECTRUM, PARAMAGNETISM,  
PHOTOCHEMISTRY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1986/0501 STEP NO--UR/0456/70/004/001/0049/0055  
CIRC ACCESSION NO--AP0102506  
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102506

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A CYSTEINE HYDROCHLORIDE SINGLE CRYSTAL WAS IRRADIATED WITH PRIME60 CO TO A DOSE OF 10 MEGARADS AT 77DEGREESK AND THE EPR SPECTRUM WAS ANALYZED. PARAMAGNETIC CENTERS OF 3 TYPES WERE FOUND. TWO WERE LOCALIZED ON THE S ATOM AND THE 3RD, A K RADICAL, WAS LOCALIZED ON A C ATOM. WHEN IRRADIATED WITH LIGHT (340-450 NM) THE S-C BOND IN HS PRIME NEGATIVE CH SUB2 C(NH SUB3 CL)HCO SUB2 H (I) IS BROKEN AND .CH SUB2 C(NH SUB3 CL)HCO SUB2 H IS FORMED. ABOVE 290DEGREESK, RADICALS .SCH SUB2 C(NH SUB3 CL)HCO SUB2 H AND PRIME NEGATIVE S:CHC(NH SUB3 CL) HCO SUB2 H ARE FORMED FROM PYROLYSIS OF I.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--PHOSPHOSULFURIZATION O,O DISALKYLPHENYL PHOSPHORODITHIOATE  
PRODUCTION IN CONTINUOUS PILOT APPARATUS -U-  
AUTHOR--(05)--ORUDZHEVA, I.M., ZEYNALOVA, G.A., POLATOVA, SH.P., NAMAZOV,  
I.I., AGADZHANOV, KH.S.  
COUNTRY OF INFO--USSR  
SOURCE--AZERB. NEFT. KEGZ. 1970 (3), 35-7  
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--LUBRICANT ADDITIVE, CHEMICAL SYNTHESIS, THIOL, PHOSPHATE  
ESTER, BENZENE DERIVATIVE, ZINC OXIDE, BARIUM HYDROXIDE/(U)VNINP354  
LUBRICANT ADDITIVE, (U)VNINP350 LUBRICANT ADDITIVE, (U)VNINP360  
LUBRICANT ADDITIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3006/1797

STEP NO--UR/0487/70/000/003/0035/0037

CIRC ACCESSION NO--AP0135502

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--20NOV70

2/2 017

CIRC ACCESSION NO--AP0135362

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ALKYLPHENOL (93.8 PARTS) AND 6.2 PARTS P SUB2 S SUB5 REACTED AT LESS THAN OR EQUAL TO 130DEGREES AND 1.33 KG PER HR PER L. REACTION VOL. TO GIVE 97PERCENT PRODUCT, WHICH WAS TREATED WITH ZNO AND BA(OH) SUB2 TO OBTAIN THE ADDITIVES VNII NP-354 AND 350, RESP., WHICH, MIXED IN RATIO 2:5, GAVE THE ADDITIVE VNII NP-360.

UNCLASSIFIED

Acc. Nr:

AP0049842

Abstracting Service:

CHEMICAL ABST. 5-70

Ref. Code:

UR 0080

P

101339j Porous structure of nonactivated carbon adsorbents from industrial types of phenol-formaldehyde resins. Plachenov, T. G.; Sevrugov, L. B.; Pulerevich, M. Ya.; Karel'skaya, V. E. (Leningrad, Tekhnol. Inst. im. Lensovet, Leningrad, USSR). Zh. Prikl. Khim. (Leningrad) 1970, 43(1), 97-101 (Russ). Carbonization of a resol-type phenol-HCHO resin and a phenol-PhNH<sub>2</sub>-HCHO resin at 400-1000° under N gave C adsorbents having extremely low pore vols. and radii in the range 2.9-280,000 Å. The adsorbents allowed C<sub>6</sub>H<sub>6</sub> mols. to pass, but not MeOH mols. A considerable expansion of the pore structure in the range of 2.9-280,000 Å was obsd. when the PhOH-HCHO mole ratio was reduced to 0.85 : 1.

CKJR J me

REEL/FRAME  
19801767

7

USSR

UDC: 639.5:536.55

BARBASHIN, Ye. F., PUL'KIS, K. S., NIKOLAYENKO, V. A., Omsk

"Determination of Fields of Temperatures of Turbine Wheels and Blades by Indicators of Irradiated Diamond"

Kiev, Problemy Prochnosti, No 8, Aug 73, pp 117-119.

Abstract: A method is described for thermometry of gas-turbine engine parts using indicators of irradiated diamond without current taps. The method is based on the property of the crystalline diamond to increase the volume of the crystalline lattice when bombarded by high energy particles and gradual recovery of the initial volume upon heating. The method can be used for thermometry of turbine wheels and blades in the 130-1200° C interval without placement of current taps or modification of the engine design.

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USSR

UDC 621.039.524.034.3.001.5

PULYAYEV, V. F., RUSSIYANOV, A. F., YUSHKO, V. A.

"Dl-P Experimental Unit for Studying Models of Heat Exchange Equipment"

Dissotsiiruvushch. gazu kak teplonositeli i rab. tela energ. ustanovok -- V sb.  
(Dissociating Gases as Heat Transfer Agents and the Working Medium of Power  
Plants -- Collection of Works), Minsk, Nauka i tekhn. Press, 1970, pp 105-108  
(from RZh-Elektrotekhnika i Energetika, No 5, May 1971, Abstract No 5U195)

Translation: A study is made of the flow chart of an experimental test unit for testing models of heat exchange equipment. The structural elements of the basic assemblies of the test unit and the experimental heat exchange equipment are described. The Dl-P test unit provides for the possibility of studying the heat exchange and hydrodynamics of models of condensers, regenerative evaporators, gas regenerators and also the fuel assemblies of nuclear reactors with a dissociating heat exchange agent  $N_2O_4$ . There is 1 illustration.

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USSR

UDC 627.81.034.001.5(47+57)

ASTRAKHANTSEV, V. I., KUKLIN, A. K., PULYAYEVSKIY, G. M., ROGOZIN, A. A.

"Methods of Studying Bank Processes on the Angar Reservoirs"

Tr. koordinats. soveshchaniy po gidrotekhn. (Works of the Coordinating Meetings on Hydroengineering), No 59, 1970, pp 89-93 (from RZh-Elektrotekhnika i Energetika, No 2, Feb 71, Abstract No 2 D44)

Translation: Studies of the following problems are continued: a) the study of geological engineering conditions of the shore zone of Lake Baykal, Irkutsk, Bratsk and Ust'-Ilinskiy Reservoirs; b) introduction of stereophotogrammetric methods; c) development and introduction of instruments and methods of complex study of wind-wave conditions.

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USSR

UDC 539.4

MOLOCHKOV, M. A., IVANENKO, A. A., VEGROV, A. N., SITNICHENKO, V. P., ~~PILYAYEV-SKIY, V. A.~~, KOVESHNIKOV, N. A.

"The Effect of the Stress Concentrator on Fatigue Strength in Male Cone Joints for Titanium Alloy Pipe"

Sb. nauch. tr. Kiev. in-t inzh. grazhd. aviatsii (Collection of Scientific Works of the Kiev Institute of Civil Aviation Engineers), 1971, vyp. 1, pp 78-81 (from RZh-Mekhanika, No 11, Nov 71, Abstract No 11V1112)

Translation: By testing samples of 7M titanium alloy pipe  $12 \times 1.5$  for fatigue, it was demonstrated that stress concentration in the investigated joint is higher than the theoretically calculated concentration. When testing with a frequency of 200 hertz on a  $10^7$  cycle base, the effective concentration factor was 3.2 with a fillet radius of 0.5 mm. The reduction in fatigue strength is ascribed to significant residual strains reaching 15% in the diameter transition zone.

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USSR

UDC 656.22.05(082)

PUL'YER, YU. M. (Editor)

"Some Problems of Automatic Control of Train Traffic"

Nekotoryye voprosy avtomaticheskogo upravleniya dvizheniyem poyezdov (Tr. Mosk. in-ta inzh. zh.-d. transp., vyp. 370) (Some Problems of Automatic Control of Train Traffic (Works of the Moscow Institute of Railroad Transportation Engineers, vyp. 370)), Moscow, 1971, 163 pp, ill., 71 k. (from RZh--Avtomatika, Telemekhanika i vychislitel'naya tekhnika, No 4, Apr 72, Abstract No 4A630K)

Translation: The 12 papers in the collection are grouped in two sections:

1) problems of automatic control of surface train traffic; 2) problems of automatic control of subway train traffic.

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USSR

UDC 621.382.3

ZVYAGIN, V.I., SUNEY, YU. I., ZATCLOKA, S.I., YEGOROV, A.I., ARGENTIN'SH, YA.YA.,  
PONDUR, P.A.

"Determination Of The Effectiveness Of Collecting Charge Carriers In Semiconduct-  
or Devices"

Elektron. tekhnika. Nauchno-tekhn. sb. Mikroelektronika (Electronic Technology.  
Scientific-Technical Collection. Microelectronics), 1970, Issue 2(23), pp 67-70  
(from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 42233)

Translation: The method described for determination of the effectiveness of  
collection of non-equilibrium carriers in various regions of a silicon planar  
transistor involves measurement of the charge collected by a p-n junction.  
Corresponding measurements are conducted on a KT331 device before and after  
irradiation by nuclear radiation. Formulas are given which connect the effect-  
iveness of collection with the volume life time of non-equilibrium charge  
carriers. Author's abstract.

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USSR

UDC 621.382.3

PUNDUR, P.A., AKMENTYN'SH, YA.YA., BERZIN'SH, A.A., DANE, B.YA., ZOBEYS, V.YA.,  
KOKORISH, YE. YU., KURMIT, YA. A.

"Silicon Low-Noise High-Frequency Unencapsulated Transistors"

Elektron. tekhnika. Nauchno-tekhn. sb. Mikroelektronika (Electronic Technology.  
Scientific-Technical Collection. Microelectronics), 1970, Issue 2(23), pp 81-  
86 (from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No  
4B245)

Translation: The construction, technology, and principal parameters are des-  
cribed of silicon planar unencapsulated low-noise high-frequency  
n-p-n type transistors for hybrid circuits.

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AA0045189

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

243194 FIBRE OPTICS MEASURING DEVICE, described in No.153126, was based on the principle of optical measurement of length using a transmitting television tube and a bunch of light guides. Measurement is not as accurate as it might be, owing to physical movement effects from the test piece. The proposal describes an improvement. The diagram shows an objective lens 1 focussed on the test piece 6 (which may be hot) and passing an optical image to the bunch of light guides 2, which are closed up at the input end 4. The output end 5 is scanned by the television tube 3; the feature of the present development is the special arrangement of these flexible fibre guides into even and

270

AUTHORS: Rabinovich, V. A.; Sharf, Ye. M.; Pungar, V. A.;  
Namsarayev, V. T.

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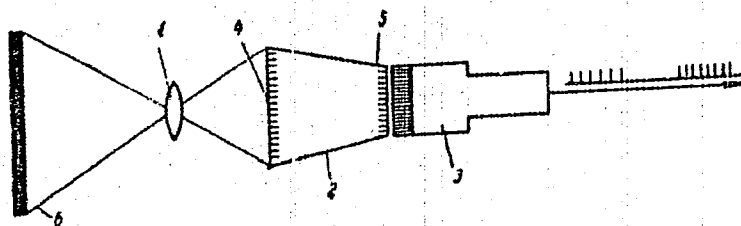
1/3

19780092

AA0045189

odd groups, as numbered at the input, so that odd numbers arrive in group A, and even in group B, of the output array. In addition they are in opposed order, as shown. The image of the hot body 6 presented to the light guides is converted by the television tube into one depending on the scanning method, but any dynamic error due to movement is only equal to the difference of the errors in each part A and B of the final image.

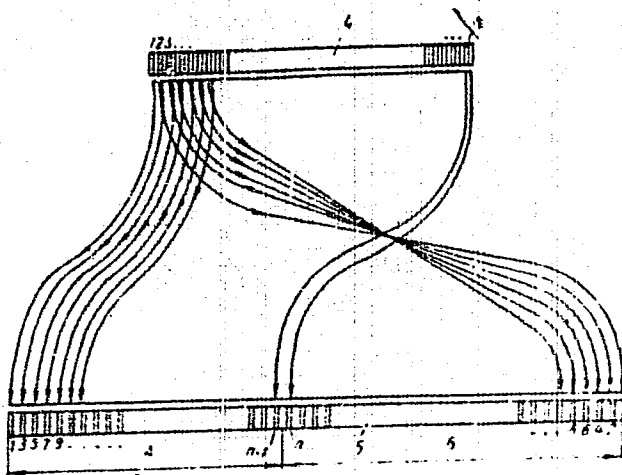
5.11.67 as 1195767/25-28 Add to 153126.V.A.RABINOV-ICH et al.(17.9.69) Bul 10/.5.5.69. Class 42b. Int.Cl.G 01b.



19780093

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AA0045189



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19780094



UDC 517.948

USSR

PEREL'MAN, A. YA., and PUNINA, V. A., Leningrad

"Inversion of Integral Equations of the First Kind With Fourier-type Kernels"  
Kazan', Izvestiya Vysshikh Uchebnykh Zavedeniy -- Matematika, No 3, Mar 71,  
pp 61-71

Abstract: The article considers integral transforms of the Fourier type

$$\int_0^{\infty} l(zy) m(z) dz = g(y) \quad (y > 0), \quad (1)$$

for which (by definition) there exists the inverse transform

$$\int_0^{\infty} t(zy) g(y) dy = m(z) \quad (z > 0). \quad (2)$$

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PEREL'MAN, A. YA., and PUNINA, V. A., Izvestiya Vysshikh Uchebnykh Zavedeniy  
-- Matematika, No 3, Mar 71, pp 61-71

If  $l(x) \in \Phi$ , where  $\Phi$  is a set of kernels of the Fourier type, then formally

$$T(p) = L^{-1}(1 - p); T(p) = M\{t(x)\}, L(p) = M\{l(x)\}, \quad (2a)$$

where  $F(p) = M\{f(x)\}$  denotes the Mellin transform of function  $f(x)$ ; equations (2a) follow from the convolution theorem for the Mellin transform. Let  $l(x) \in \Phi$  and  $t(x)$  be the corresponding inverse transform of the Fourier type. Then the following identity is valid:

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PEREL'MAN, A. YA., and PUNINA, V. A., Izvestiya Vysshikh Uchebnykh Zavedeniy  
-- Matematika, No 3, Mar 71, pp 61-71

$$\int_0^{\infty} l(z y) \left[ \int_0^{\infty} l(z x) g(x) dx \right] dz = g(y) \quad (y > 0). \quad (3)$$

Assuming the possibility of changing the integration order, the kernels  $l(x)$  and  $t(x)$  constitute a pair of Fourier-type transforms if and only if the following relation is true:

$$\int_0^{\infty} l(z x) l(z y) dz = \delta(x - y) + \eta(x, y) \quad (y > 0),$$

where

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PEREL'MAN, A. YA., and PUNINA, V. A., Izvestiya Vysshikh Uchebnykh Zavedeniy  
-- Matematika, No 3, Mar 71, pp 61-71

$$\tau(x, y) = 0 \quad (x > 0, y > 0),$$

given  $g(0) = 0$ , and

$$\tau(x, y) = 0 \quad (x > 0, y > 0),$$

given an arbitrary  $g(0)$ .

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USSR

PEREL'MAN, A. YA., and PUNINA, V. A., Izvestiya Vysshikh Uchebnykh Zavedeniy  
-- Matematika, No 3, Mar 71, pp 61-71

The article studies integral equation (1) on a set of kernels of the form

$$l(x) = \cos ax \sum_{k=0}^n \frac{b_{1k}}{x^k} + \sin ax \sum_{k=0}^n \frac{b_{2k}}{x^k} + \sum_{k=0}^n \frac{d_k(a)}{x^k}, \quad (4)$$

where  $a > 0$ ,  $b_{1k}$ ,  $b_{2k}$  ( $b_{10}^2 + b_{20}^2 \neq 0$ ) are arbitrary,  $d_k(a)$  are selected by virtue of the condition

$$l(x) \in C[\alpha, \beta].$$

USSR

PEREL'MAN, A. YA., and PUNINA, V. A., Izvestiya Vysshikh Uchebnykh Zavedeniy  
-- Matematika, No 3, Mar 71, pp 61-71

The subsets  $\tilde{L}$  and  $\tilde{L}_*$  are isolated from the set of kernels (1), criteria are obtained for testing the inclusions  $l(x) \in \tilde{L}$  and  $l(x) \in \tilde{L}_*$ , and a way is shown for changing from kernels (1) from subset  $\tilde{L}$  to kernels for the solution of (2).

A subsequent article will deal in detail with conditions for the existence and uniqueness of the inversion of (1) in the form of (2), a method for selecting the kernel  $t(x)$  from the set  $M$ , and justification for changing the order of integration in (3).

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1/2 017 UNCLASSIFIED PROCESSING DATE--02 OCT 70  
TITLE--CONDITIONS OF OBSERVATION OF HALOS IN POLYDISPERSE CLOUDS -U-  
AUTHOR--(02)-SHIFRIN, K.S., PUNINA, V.A.  
COUNTRY OF INFO--USSR  
SOURCE--AKADEMIIA NAUK SSSR, IZVESTIYA, FIZIKA ATMOS FIZ I OKEANA, VOL 6  
FEB. 1970, P 204-207  
DATE PUBLISHED-----70

SUBJECT AREAS--ATMOSPHERIC SCIENCES

TOPIC TAGS--ATMOSPHERIC CLOUD, PARTICLE DISTRIBUTION, LIGHT SCATTERING,  
ATMOSPHERIC OPTIC PHENOMENON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1989/1904

STEP NO--UR/0362/70/006/000/0204/0207

CIRC ACCESSION NO--AP0108234

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0108234

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE RELATION BETWEEN THE FORMATION OF HALOS IN POLYDISPERSE CLOUDS AND THE DISTRIBUTION OF THE RADII OF THE SCATTERING PARTICLES. A THEORY OF HALOS IS CONSTRUCTED IN A KIRCHHOFF APPROXIMATION, AND A GRAPH SHOWING THE RELATION BETWEEN THE LOCATION OF THE HALOS AND THE WIDTH OF THE DISTRIBUTION OF THE SCATTERING PARTICLES IS PLOTTED. IT IS SHOWN THAT IT IS POSSIBLE TO ESTIMATE THE WIDTH OF THE PARTICLE DISTRIBUTION FROM THE NUMBER OF OBSERVED HALOS.

UNCLASSIFIED



USSR

UDC 622.342:541.183.12

FRIDMAN, I. D., POCHKINA, L. YE., ZDOROVA, E. P., BEK, R. YU., MASLIY, A. I.,  
PUNISHKO, O. A., POCHIVALOV, I. N., and STAFEEVA, L. S.

"Ion-Exchange Technology in Gold Hydrometallurgy"

Moscow, Tsvetnyye Metally, No 3, Mar 70, pp 70-74

Abstract: Ion-exchange technology permits the use of filter-free systems, thus eliminating both costly equipment and cumbersome operations -- filtration of pulp and washing of precipitates as well as precipitation of Au from solutions. Sorption leaching, which is more complete in dissolving Au from ore and reduces the loss of dissolved gold in the dump pulp, offers much better conditions for higher Au extraction. In order to provide satisfactory results, the new technology requires the use of anionites, which are selective with respect to Au, and also have high kinetic, mechanical, and regeneration properties. The selectiveness of the AP-2 anionite, synthesized at the Kemerov Scientific-Research Institute for the Chemical Industry, was found to be 2--2.5 and its capacity -- 1.3--1.5 times that of similar anionites. The anionite was tested on a semi-industrial unit using a counter-current system. The high desorption capacity of the bifunctional AP-2 anionite with respect to metal impurities makes it possible to simplify the regeneration process and reduce the number of required elements. The process

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FRIDMAN, I. D., et al, *Tsvetnyye Metally*, No 3, Mar 70, pp 70-74

includes the following phases: desorption of CN, Zn, and Ni with  $\text{HNO}_3$  or  $\text{H}_2\text{SO}_4$  solutions; desorption of Au, Ag, and Cu by chloride and sulfide solutions of thio-urea during electroelution, and desorption of Fe by  $\text{NH}_4\text{NO}_3$  alkaline solutions at  $50\text{--}55^\circ\text{C}$ . The high desorption capacity of the AP-2 anionite determines the relatively short duration of the regeneration process: desorption of CN, Zn, and Ni -- 5 hrs; desorption of Au, Ag, Cu during electroelution -- 3--5 hrs; desorption of Fe--5 hrs. The complete procedural flow chart is given in the original article.

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VEL'MIN, V.A., MEDVEDEV, Yu.A., PUNKEVICH, B.S., and  
STEPANOV, B.M., All-Union Scientific Research Institute of  
Optico-Physical Measurements

"Magnetic Field Probing of the Detonation Region of a Charge  
of Explosives"

Moscow, Doklady Akademii Nauk SSSR, Vol 197, No 1, Mar 71,  
pp 70-72

Abstract: On the basis of previous research, it has been found that the distortion in a constant extrinsic field is lower than the sensitivity of the magnetic field sensors used. In order to increase the field perturbation created by an explosion up to easily observable values it is necessary to either increase the initial field or the magnitude of the explosion or to conduct the explosion in a variable field that varies at the frequency for which the thickness of the skin-layer is on the order of magnitude of the detonation region. It is simplest to create the detonation in a variable magnetic field. This article describes the appropriate experiments in this direction and the results obtained therefrom.

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Figure 1 in this article shows a typical oscillogram of the process and Figure 2 gives the signal of un-

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VEL'MIN, V.A., et al, Doklady Akademii Nauk SSSR, Vol 197, No 1, Mar 71, pp 70-72  
balance as a function of time, averaged over about 100 tests, in relative units. The conclusion is reached that at least in the initial moments of time the conductivity is concentrated in the layer where, for small values of  $t$ , the effective thickness of the conducting layer is much less than the difference in radii of the front of the shock wave and the leading edge of the explosion products and that it grows with time.

The obtained results may be explained by the decrease in the temperature gradient with the passage of time and consequently by the increase in the characteristic length by which the degree of thermal ionization of air drops near the contact surface of the explosion products. Additional data are needed on the magnitude of  $\Delta(t)$  at these moments in order to determine the absolute values of the time-averaged conductivity.

The article contains 2 figures and a bibliography of 5 titles.

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USSR

UDC 911.3:616.981.452(575.4)

BURLACHENKO, T. A., PUNSKIY, Ye. Ye., ZHERNOVOV, I. V., and ZAGNIBORODOVA, Ye. N.

"Characteristics of the Plague Epizootic Among Rodents in Turkmenia (1964-1969)"

V sb. Probl. osobo opasn. infektsiy (Problems of Especially Dangerous Infections -- collection of Works), Saratov, No 4(14), 1970, pp 110-123 (from RZh-Meditsinskaya Geografiya, No 3, Mar 71, Abstract No 3.36.118) by B. Dobrokhotov.

Translation: The plague epizootic among rodents in various natural regions of Turkmenia was recorded annually for the last six years: in the western and northwestern part in 1964-1966, in the southwestern part in 1966-1968, in the northeastern part in 1965-1969, in the southeastern part in 1966-1968, in the northern part in 1966-1969, and in the eastern part in 1969. Territorial and biocenotic characteristics of the foci and the development of the epizootic in each natural region are described. Included are tables of isolation of plague cultures from mammalian and arthropod vectors. The main species of rodents participating in the epizootic is the great gerbil, involvement of redtailed midday gerbils and the yellow suslik led to an increase in the

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USSR

BURLACHENKO, T. A., et al., RZh-Meditsinskaya Geografiya, No 3, Mar 71, Abstract No 3.36.118)

intensity of the epizootic and to its further spread. Practically all territorial regions of the southern deserts at the borders of Turkmenia are sections of continuous natural focal activity of plague and are not temporary foci. Sites of prolonged retention of plague bacteria in both epizootic and nonepizootic years are stations of rodent survival in which elementary plague foci may be found. Four maps of sites at which plague cultures have been isolated in Turkmenia from 1964 to 1969 are included.

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USSR

UDC: 621.317:621.391.822

GOROZHDANOV, D. P., PUODZHYUKINAS, A. A.

"Signal-to-Noise Ratio in Modulation Noise Factor Meters"

Tr. Nauch.-tekhn. konferentsii "Radioelektronika" (Works of the Scientific and Technical Conference on Radio Electronics), Vol. 6, Kaunas, 1970, pp 101-107 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A270)

Translation: The paper discusses the signal-to-noise ratio in modulation noise factors meters in the case of individual measurement of the noise factors of microwave amplifiers, as well as the receivers as a whole. Resumé.

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USSR

UDC: 621.317:621.391.822

GOROZHDANOV, D. P., PUODZHYUKINAS, A. A., STARIKOV, B. D.

"On the Problem of Measuring Noise Temperatures in Low-Noise SHF Receivers"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 2), Novosibirsk, 1970, pp 21-22 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A319)

Translation: The authors present a schematic diagram for measuring low noise temperatures in SHF receivers with the use of a cold load and connection of a noise generator through a directional coupler. A formula is given for determining the error in noise temperature measurement. Analysis shows the appreciable effect of some parameters of the directional coupler on error. It is concluded that the directional coupler must satisfy rigid requirements. E. L.

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USSR

UDC 534.781

MOROZOV, V. P., PUOLOKAYNEN, P. A., KHOKHLOV, A. D., Institute of Evolutionary Physiology and Biochemistry imeni I. M. Sechenov of the USSR Academy of Sciences, Leningrad

"Infrasounds Generated by the Human Vocal Organ in the Speech and Singing Process"

Moscow, Akusticheskiy Zhurnal, Vol XVIII, No 1, 1972, pp 144-146

Abstract: A spectral analysis was made of the human voice in the infrasonic range. Both ordinary conversational speech and singing were investigated. Some example spectrometric recordings and oscillograms are presented. On the infrasonic oscillogram basically a frequency on the order of 5 hertz predominates which is well-synchronized with the vibrato frequency of the singer exhibited in the form of amplitude modulation of the sound oscillogram. The origin of infrasounds during speech processes is connected with syllabification, that is, modulation of the air flow from the lungs by the articulation apparatus. The infrasonic frequency corresponds to the mean frequency of the syllable articulation. The origin of infrasound during singing is of a different nature. When singing vowels, the singer's mouth is wide open and articulation is essentially absent; therefore, it is possible to propose that the generation of infrasound is realized by the respiratory apparatus of the singer (the diaphragm)

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MOROZOV, V. P., et al., Akusticheskiy Zhurnal, Vol XVIII, No 1, 1972, pp 144-145

and larynx. This supposition is based on the fact that during singing noticeable vibrations of the diaphragm and larynx are observed synchronized with the vibrato frequency. Thus, the origin of the vibrato of a singing voice is connected with the generation of infrasonic by the vocal organ.

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- 95 -

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purin, N.A.

UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General,  
Derwent, 2-70

243407

TIE-ROD FOR AIRCRAFT CONTROL SYSTEMS

comprises metal tubes, tips and inserts with ball bearings, differing in being of two tubes of different diameters as described below, to improve reliability by doubling at any cross-section. The device consists of outer and inner tubes 1 and 2, fitted one inside the other with a clearance. On one end of the tubes is fitted an adjustable cap by means of rivets 3. The cap consists of outer and inner cylinders 4 and 5 connected by a thread. Hollow lug-bolt 6, connected to insert 7, is screwed into inner cylinder 5. In the longitudinal aperture of bolt 6 is fitted tie bolt 8, the head of which is against the face of the hollow bolt, and the other end screwed into the insert and locked by split pin 9. On the

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AA0052672

other end of the tube is a non-adjustable cap comprising inner and outer cylinders 11 and 10, pre-connected by bolt 12, which at the same time screws into insert 13 and is locked by split pin 14. The adjustable cap is adjusted for the length of the tie-rod, tightened by locknut 15 and locked by tab washer 16.

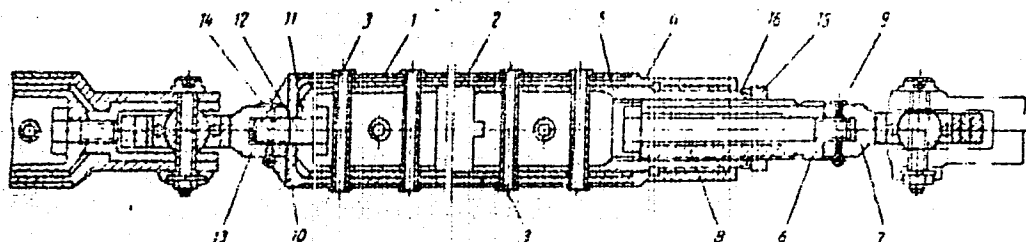
22.8.63 as 853726/40-23 SEMENOV V.N. et al.  
(15.9.69) Bul. 16/5.5.69. Class 62b, Int. Cl.  
B 64d.

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19821432

AA0052672

Semenov, V. N.; Pupin, N. A.; Tikhomirov, N. M.



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19821433

1/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--NONLINEAR PROPERTIES OF TRIGLYCINE SELENATE --U-  
AUTHOR--(02)-VARIKASH, V.M., PUPKEVICH, P.A.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(2), 151-2  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--CHEMISTRY, PHYSICS  
TOPIC TAGS--DIELECTRIC CONSTANT, ALTERNATING VOLTAGE, ORGANOSELENIUM  
COMPOUND, GLYCINE  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1997/1023 STEP NO--UR/0139/70/013/002/0151/0152  
CIRC ACCESSION NO--AT0119890  
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--30 OCT 70

CIRC ACCESSION NO--AT0119890

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF ALTERNATING FIELD VOLTAGE, TEMP., AND POLARIZATION (P) ON THE DIELEC. CONST. (EPSILON) WERE STUDIED AROUND THE PHASE TRANSITION TEMP. THE RELATION  $\text{WPI} (1 - \epsilon - \epsilon_{\text{SUBO}}) \text{ EQUALS } 3\beta \epsilon \text{ TARD} \text{ PRIME}^2$  WAS OBEYED WITH  $\beta \text{ EQUALS } 3.9 \text{ TIMES } 10 \text{ PRIME NEGATIVE } 10 \text{ C.G.S. UNITS.}$   
FACILITY: MINSK. RADIOTEKH. INST., MINSK, USSR.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE—30OCT70  
TITLE—CLINICAL FORMS AND CLINICAL CLASSIFICATION OF LEPTOSPIROSIS —U—  
AUTHOR—PUPKEVICHDIAMANT, YA.S. *P*  
COUNTRY OF INFO—USSR  
SOURCE—KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 5, PP 102-109  
DATE PUBLISHED—70  
  
SUBJECT AREAS—BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS—LEPTOSPIROSIS, SEROLOGY  
  
CONTROL MARKING—NO RESTRICTIONS  
  
DOCUMENT CLASS—UNCLASSIFIED  
PROXY REEL/FRAE—2000/0210 STEP. NO—UR/0497/70/048/005/0102/0109  
CIRC ACCESSION NO—AP0123978  
UNCLASSIFIED



2/2 016

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123978

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR ARRIVES AT THE CONCLUSION ON THE COMMON NATURE OF LEPTOSPIROSES; THIS IS A SINGLE INFECTION OF POLYETIOLOGICAL CHARACTER, CAUSED BY DIFFERENT VARIANTS OF LEPTOSPIRA. THE PAPER ENUMERATES THE PRINCIPAL CLINICAL FORMS OF THE DISEASE (INFECTIOUS SEPTICOTOXIC, NEUROMENINGEAL, ICTERIC HEPATIC) AND A MIXED FORM, ICTERIC MENINGEAL. A DEFINITE FREQUENCY OF THESE MANIFESTATIONS DEPENDING ON THE INDIVIDUAL SEROTYPES OF THE CAUSATIVE AGENT WAS REVEALED. THE AUTHOR PROPOSES A CLINICAL CLASSIFICATION OF LEPTOSPIROSES: DIVISION IN ACCORDANCE WITH THE ETIOLOGICAL SIGN OF THE CLINICAL FORM, SEVERITY OF THE COURSE AND THE PRESENCE OF COMPLICATIONS.

FACILITY: LABORATORIYA NOVOCHERKASSKOGO  
LEGOCHNO-KHIRURGICH-ESKOGO SANATORIYA.

UNCLASSIFIED

USSR

UDC: 616.22-008.4-189.28-78

PUPKO, I. D., ULASHKEVICH, Yu. V., MAGRACHEV, A. Z., BORONETS, V. P., DOLGOV, V. K.,  
LAPSHIN, V. A., DEKHTYAR, B. S., VAYNSHTEYN, A. M.

"A Voice-Forming Device"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 28,  
1970, Soviet Patent No 280548, Class 21, filed 9 Jun 69, p 42

Abstract: This Author's Certificate introduces a voice-forming device which contains a main current generator, projector and self-contained power supply. As a distinguishing feature of the patent, the sound spectrum of the projected oscillations is approximated to that of natural speech by adding a noise generator, a noise amplifier, and an operating mode commutator.

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USSR

UDC: 61.615.47:621.38

P  
PUPKO, I. D., KOLGOV, V. K., KEYVER, A. R., Leningrad Institute of Precision Mechanics and Optics

"An Electrocardiogram Simulator"

Leningrad, Izvestiya VUZov Priborostroyeniye, Vol 15, No 6, 1970, pp 19-23

Abstract: Methods are considered for constructing devices to imitate the bio-electric activity of the myocardium. Two modifications of the EKG simulator are described: 1) a simplified modification which provides a fairly wide range of both normal and pathological forms of EKG, and also permits continuous variation of any parameters of the EKG over broad ranges close to those encountered in clinical practice; 2) a more complex modification which satisfies these requirements and also provides for calibration of EKG rhythms to a precision of the order of 20 msec, automatic variation of EKG parameters according to a preset program, and simulation of arrhythmia. The simplified imitator is used chiefly for adjusting EKG amplifiers, while the second version may be used for adjusting and testing automatic EKG analyzers.

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USSR

UDC: 51:155.001.57:681.3.06

PUPKOV, K. A., VIALOV, A. F., GALUSHKIN, A. I.

"Geometric Recognition of Sets of Various Structure"

Tr. Mosk. in-ta elektron. mashinostr. (Works of the Moscow Institute of Electronic Machine Building), 1971, vyp. 14, pp 95-108 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V876)

Translation: The paper deals with problems of constructing systems of geometric recognition of types of sets in which the number of points is bounded from above. An algorithm is proposed for preparing a space of characteristics as well as an algorithm for estimating the accuracy of the coordinates of singular points of a set and an algorithm for a system of recognition of the type of sets. Authors' resumé.

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USSR

UDC 621.224-2.001.5(47+57)

ZUBRITSKAYA, M. A., PUPKO, T. YE., KOSMATOVA, G. E., PROTOPOPOVA, V. P.,  
KUZNETSOV, V. I.

"Study of the Stressed State and Strength of the Spiral Chamber with a Steel Reinforced Concrete Shell in the Turbine Unit of the Inguri Hydroelectric Power Plant"

V sb. Nauchn. issled. po gidrotekhn, v. 1969 g. T.1 (Scientific Research in Hydrengineering in 1969, Vol 1 -- collection of works), Leningrad, Energiya Press, 1970, pp 24-25 (from RZh-Elektrotekhnika i Energetika, No 4, Apr 71, Abstract No 4 D81)

Translation: A model (1:6) of a spiral chamber was studied in order to discover the expedient reinforcement of the turbine unit of Inguriges [Inguri Hydroelectric Power Plant] and improve the supporting elements of the spiral chamber and the turbine stator. The most loaded elements turned out to be the stator columns, the stresses at individual points of which reached the yield point of the steel. On the basis of the research results, recommendations were developed with respect to strengthening the stator columns by varying the configuration and increasing their cross sections at the approach to

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ZUBRITSKAYA, M. A., et al., Nauchn. issled. po gidrotekhn. v. 1969 g. T.1, Leningrad, Energiya Press, 1970, pp 24-25.

the stator rings. It turned out to be expedient to increase the rigidity of the turbine unit by increasing the thickness of the base under the generator and raising the floor of the turbine room. For the unique turbines of Inguriges recommendations were made to strengthen the shell of the spiral chamber the effectiveness of which will be checked during subsequent tests.

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USSR

PUPKOV, K. A., DARCHIASHVILI, V. V.

"Tensor Analysis of the Capability of the Brain for Assimilation of Information"

Tr. Mosk. In-ta Elektron. Mashinostr. [Works of Moscow Institute of Electronic Machine Building], 1972, No 28, pp 117-119 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V736, by the authors).

Translation: The reaction of the brain to the novelty of a stimulus or adaptation is studied on the basis of tensor calculation.

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USSR

UDC: 51:155.001.57:681.3.06

PUPKOV, K. A., VYALOV, A. F., GALUSHKIN, A. I.

"Geometric Recognition of Sets With Various Structures. I"

Tr. Mosk. in-ta elektron. mashinostr. (Works of the Moscow Institute of Electronic Machine Building), 1971, vyp. 14, pp 95-108 (from RZh-Matematika, No 11, Nov 71, Abstract No 11V876)

Translation: The authors consider problems of constructing systems for geometric recognition of types of sets in which the number of points is limited from above. The authors propose an algorithm for preparing a space of distinctive features as well as an algorithm for estimating the accuracy of the coordinates of singular points in the set and an algorithm of a system for recognizing the type of set. Authors' resumé.

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USSR

UDC: 8.74

PUPKOV, K. A.

"Concerning Some Principles of Synthesizing Automated Systems for Controlling Complex Objects"

Tr. Mosk. in-ta elektron. mashinostr. (Works of the Moscow Institute of Electronic Machine Building), 1971, vyp. 23, pp 3-10 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V485)

Translation: The author discusses general schemes of controlling (cybernetic) systems, and considers the advantages of a cellular realization of cybernetic systems in connection with the possibility of adequate representation of many multidimensional problems and parallel computations, which considerably accelerates the solution of problems. A. Muchnik.

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USSR

UDC: 8.74

PUPKOV, K. A., VYALOV, A. F.

"Geometric Recognition of Sets of Various Structure"

Tr. Mosk. in-ta elektron. mashinostr. (Works of the Moscow Institute of Electronic Machine Building--collection of works), 1971, vyp. 23, pp 137-144 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V573)

Translation: For part 1, see RZhMat 1971, 11V876. The paper deals with problems of evaluating the accuracy of determining the coordinates of singular points. Algorithms are proposed for instructing the system of determining singular points and for evaluating the parameters which determine the operating quality of the system. Authors' abstract.

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USSR

UDC: 8.74

PUPKOV, K. A., RUDENKO, Yu. M.

"An Algorithm for Distinguishing the Outline of the Image of an Object Against a Complex Background"

Tr. Mosk. in-ta elektron. mashinostr. (Works of the Moscow Institute of Electronic Machine Building), 1971, vyp. 23, pp 145-148 (from RZh-Kiber-netika, No 4, Apr 72, Abstract No 4V587)

Translation: Criteria are introduced for deciding whether a point is part of an outline. These criteria are used in constructing a recurrent procedure for sampling the points of an outline. Some results of experimental studies are presented. Authors' abstract.

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USSR

UDC: 8.74

PUPKOV, K. A., NARIMANOV, V. Kh., GALUSHKIN, A. I.

"A Specialized Recognition Device"

Tr. Mosk. in-te elektron. mashinostr. (Works of the Moscow Institute of Electronic Machine Building), 1971, vyp. 23, pp 156-165 (from RZh-Kiber-netika, No 4, Apr 72, Abstract No 4V586)

Translation: Principles of design of specialized recognition devices are considered. One of such devices having a variable structure is described. Authors' abstract.

USSR

PUPKOV, K. A., KOSTYUK, G. A.

"Some Problems of Stochastic Models of Trainability of Cybernetic Systems"

Tr. Mosk. In-ta Elektron. Mashinostr. [Works of Moscow Institute of Electronic Machine Building], No 6, 1970, pp 33-48, (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V736 by the author's).

Translation: A method is suggested for estimating the probability of successful operation of automatic systems which are trained during a process of testing. A mathematical model of the process of training is constructed, considering the dependence of the test results from sample to sample. The method can be used to estimate the probability of successful operation of any system or device which is adjusted during the testing process.

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USSR

UDC: 62-501.4

PUPKOV, K. A., LOMAKIN, I. V., ZOTOV, M. G., Moscow Higher Technical School  
Imeni N. E. Bauman

"Synthesis of Nonlinear Systems Under Random Affects Based on an Equivalent  
Transfer Function"

Leningrad, Priborostroyeniye, Vol 13, No 6, 1970, pp 27-33

Abstract: The method of equivalent transfer functions is a development of the statistical linearization technique, permitting the output spectrum of the equivalent linear model to be the same as that of the nonlinearity it replaces without placing limitations on the transmission band width of the linear system portion. The equivalent transfer function derived by Pupkov (1965) from the relationships of output and input spectra of the nonlinear element is a steady state linear model of the nonlinear element, capable in principle of yielding an exact solution to the problem of analyzing and synthesizing steady state nonlinear systems within the framework of correlation theory.

Starting from a generalized expression for the equivalent transfer function, the basic problem in synthesizing nonlinear systems consists of finding the optimum parameters for given equivalent circuits in terms of a given criterion  
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USSR

PUPKOV, K. A., et al, Priborostroyeniye, Vol 13, No 6, 1970, pp 27-33

of optimality. The optimum correcting unit will be uniquely determined by the chosen equivalent circuit structure and its parameters and by the ordinary relationships between statistical system input and the properties of the system section under consideration. In a real problem there are two stages, development of the ideal equivalent function structure and determination of its parameters. It is claimed that the optimization of parameters for the equivalent transform is sufficient, since the parameters of any nonlinear function can be shown to be analytic functions of the parameters of the equivalent transform. Optimization of the parameters proceeds first by partial differential methods, then by the formation of a Lyapunov V function from the sums of the squares of the errors, and a further search in the form of solutions to a system of nonlinear differential equations. Use of a digital computer on these equations has obvious advantages over a direct attack on a nonlinear algebraic system.

Making some reasonable assumptions, one can apply essentially the same mathematics to a situation in which the signal is subject to statistical noise.

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USSR

PUPKOV, K. A., et al, Priborostroyeniye, Vol 13, No 6, 1970, pp 27-33

The technique is shown as applied to a straight series system with simple feedback and to a system with two branches.

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USSR

UDO 548.313.7

LUK'YANOV, D.P., PUPOV, A.D.

"Classification Of Electrooptical Media Satisfying The Operating Conditions  
In Systems For Shift Of The Light Wave Frequency"

Radiotekhnika i elektronika, Vol XVII, No 5, May 72, pp 1001-1009

Abstract: A classification is made of electrooptical media which provide uniform rotation of an ellipse originating at the cross section of the ellipsoid of the refractive indices with the plane of application of the circular controlling field. The analysis of the conditions for interaction of circular light and modulating waves in electrooptical media makes it possible to form a requirement on the polarization constants of crystals with which the frequency shift of the initial light wave is attained. The classification made of dielectrics enlarges the assortment of electrooptical media which satisfy the conditions of operation of frequency-shift devices, single-band modulators and a number of other systems which use a circular wave for excitation of crystals with both a linear and a quadratic electrooptical effect. 2 tab. 12 ref. Received by editors, 7 April 1971.

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USSR

UDC 537.29

KORNILOV, E. N., KHOLPANOV, L. P. and PUPKOV, Ye. I., Tula

"Effect of Electrolyte Composition and Temperature on the Anodic Dissolution of VT-14 Titanium Alloy"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 72, pp 130-133

Abstract: Experimental data are presented on an investigation of the anodic polarization of VT14 titanium alloy in different electrolytes and on a determination of the limiting stage of the anode process during electrochemical treatment. It was shown that the dissolution rate and anodic polarization of the alloy depends primarily on anion composition and temperature of the electrolyte and that the limiting stage of VT14 dissolution is electrochemical for the electrolytes used: 15% KBr (pH 8.2), 15% NaCl + 1% NaF (pH 8.3), 15% NaCl (pH 7.5) and 14% KF (pH 9.2). Of these electrolytes, the bromide and chloride-bromide electrolytes had the greatest electrochemical activity, which allows them to be recommended for the electrochemical treatment of VT14. 3 figures, 1 table, 7 bibliographic references.

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USSR

UDC 669.295:620.17

MOSKALENKO, V. A., FURTSOVA, V. N. and UL'YANOV, R. A. (deceased), Physico-technical Institute Academy of Sciences UkrSSR

"Strength and Plasticity of Titanium Alloys at Low Temperatures"

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 6, 1970, pp 17-19

Abstract: An investigation was made of the temperature dependence of strength properties, the strengthening effect of alloying elements, and the development of plastic deformation process in  $\alpha$ -hardness titanium solutions with aluminum, zirconium, niobium, and vanadium. The highest strength was obtained by alloying titanium with aluminum. The strengthening effect increases with decreasing temperature. A satisfactory plasticity is obtained with 3% aluminum. The temperature dependence of strength characteristics and plasticity of alloys is shown in graphs. Titanium alloys based on  $\alpha$ -hard solutions retain high plasticity in the entire low-temperature range (4.2-293°K). It was established that twinning contributes substantially to the development of plastic deformation. Metallographic studies showed that at room temperature plastic deformation is accomplished mainly by slip. 2 figures, 3 references.

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USSR

UDC:669.187.6

VOLKOV, S. Ye., PAVPEROVA, I. A., KEYUYEV, M. M., PUPYNINA, S. M., and  
FRENKEL, YA. A.

"Improvement of the Quality of Type Kh25N16G7AR (EI835) Steel"

Proizvodstvo Chernykh Metallov [Production of Ferrous Metals--Collection of  
Works], No 75, Metallurgiya Press, 1970, pp 169-177

Translation: The possibility is studied of improving the quality of type EI835 steel by double electric slag remelting. The repeated electric slag remelting allows a significant reduction in the contamination of the metal with non-metallic inclusions. However, in order to produce metal of the highest quality, it is necessary to consider the temperature mode of the process and the composition of the flux.

The influence of the composition of the working flux on the nature of non-metallic inclusions following electric slag remelting has been established. For example, after remelting under a flux with increased content of basic oxides, the inclusions contain calcium oxide and magnesium oxide. Remelting beneath a flux, the composition of which included aluminum oxide, led to an increase in the content of alumina in the inclusions. Based on these facts, an assumption is made concerning the mechanism of interaction of slag and metal during the process of electric slag remelting. 4 figures; 3 tables; 3 biblio. refs.

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6  
USSR

UDC 669.187.25

BUSHMELEV, V. M., TYURIN, YE. I., DUMCHEV, YA. P., KARAYEV,  
V. M., VOLKOV, S. YE., PUPYNINA, S. M., SHARAPOV, A. A.,  
BAGLAY, V. M., MEDOVAR, E. I., LATASH, YU. V., Krasnyy Oktyabr'  
Plant, Central Scientific Research Institute of Ferrous  
Metallurgy and Institute of Electric Welding imeni Ye. O. Paton,  
Academy of Sciences Ukrainian SSR

"Production of 4-Ton Ingots in a Bifilar Electroslag Remelting  
Furnace"

Moscow, Stal', No 3, Mar 70, pp 236-238

Abstract: The article describes a bifilar electroslag remelting scheme developed at the Institute of Electric Welding, imeni Ye. O. Paton, which provides for the melting in one crystallizer of two electrodes, isolated from each other, which are attached to one electrode holder and connected to the ends of the secondary winding of a single-phase transformer with the same power as in a single-electrode furnace. In order to obtain rectangular 640X160 ingots weighing 4 tons, one of the electroslag remelting furnaces of the Krasnyy Oktyabr' Plant, designed for

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USSR

BUSHMELEV, V. M., et al, Stal', No 3, Mar 70, pp 236-238

the production of 2-ton ingots according to the single-electrode scheme and equipped with a single-phase 1000-kva transformer, was remodeled for melting according to the bifilar scheme. Only the mechanical part of the furnace underwent alteration. Slag systems used for the melting included  $\text{CaF}_2\text{-Al}_2\text{O}_3$ ,  $\text{CaF}_2\text{-CaF}_2\text{-CaO-Al}_2\text{O}_3$ , and  $\text{CaF}_2\text{-CaO-Al}_2\text{O}_3\text{-MgO}$ . It was found that the production of metal of satisfactory quality in the bifilar furnace requires the same degree of submersion of the electrodes in the slag bath, as well as keeping the electrode spacing unchanged during the melting. This was accomplished with the use of simple devices. The bifilar scheme approximately doubles furnace productivity and reduces electric energy consumption by 25-29 percent. Data are presented on the quality of 4-ton ingots of ball-bearing steel ShKh 15, structural steel 40KhNMA and stainless sheet steels 10Kh12NVMFA (EI962) and Kh23N18 obtained on the bifilar furnace.

2/2

- 23 -

USSR

UDC: 577.4

PUPYREV, Ye. I.

"Two Programs for Minimizing Systems of Boolean Functions"

Inform. materialy. Nauch. sovet po kompleks. probl. "Kibernetika" AN SSSR  
(Informational Materials. Scientific Council on the Complex Problem of  
Cybernetics, Academy of Sciences of the USSR), 1971, No 7(54), pp 112-115  
(from RZh-Kibernetika, No 5, May 72, Abstract No 5V349)

[No abstract]

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USSR

UDC: 577.4

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GAVRILOV, M. A., DEVIATKOV, V. V., POTEKHIN, A. I., CHECHKOVSKIY, A. B.,  
PUPYREV, Ye. I.

"Technical Requirements for an Automated System for Logical Synthesis of Discrete Controlling Devices. Using Procedures of Dialog With a Computer in Synthesizing Such Devices. By Way of Discussion"

Inform. materialy. Nauch. sovet po kompleks. probl. "Kibernetika" AN SSSR  
(Informational Materials. Scientific Council on the Complex Problem of Cybernetics, Academy of Sciences of the USSR), 1971, No 7(54), pp 62-112  
(from RZh-Kibernetika, No 5, May 72, Abstract No 5V325)

[No abstract]

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1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--THE DISTRIBUTION OF ORBIT PARAMETERS AND THE CHANGES IN INCIDENT  
METEOR PARTICLE FLUX DENSITY -U-  
AUTHOR-(103)-ANDRIANOV, N.S., PUPYSEV, U.A., SIDOROV, V.V.  
COUNTRY OF INFO--USSR  
SOURCE--ROYAL ASTRONOMICAL SOCIETY, MONTHLY NOTICES, VOL. 148, NO. 2,  
1970, P. 227-237  
DATE PUBLISHED-----70  
SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS  
TOPIC TAGS--ORBIT PARAMETER, METEOR, ASTRONOMIC OBSERVATORY, METEOR  
RADIANT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--2000/1481 STEP NO--UK/0000/70/148/002/0227/0237  
CIRC ACCESSION NO--AP0125109  
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0125109

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS PAPER PRESENTS THE RESULTS OF MEASUREMENTS, MADE AT THE KAZAN RADIO ASTRONOMY OBSERVATORY (USSR), OF THE ORBITS OF METEORS AND THE INCIDENT FLUX OF METEORIDS. TWO NEW RADIO METHODS HAVE BEEN USED WHICH REMOVE THE SENSITIVITY LIMITATIONS OF A BACK SCATTER RADAR FOR FAINT AND FAST METEORS. THIS IMPROVES THE STATISTICAL RELIABILITY OF THE FLUX MEASUREMENTS. THE ELIMINATION OF VELOCITY SELECTION HAS NOT RESULTED IN CONSIDERABLE CHANGES IN THE DISTRIBUTIONS OF ORBIT PARAMETERS. OBSERVATIONS FOR MANY YEARS HAVE SHOWN THAT SEASONAL PECULIARITIES IN THE DISTRIBUTIONS OF SPORADIC METEOR RADIANTS OVER THE CELESTIAL SPHERE AND THE AVERAGE INCIDENT METEOR PARTICLE FLUX VALUE REMAIN UNCHANGED FROM YEAR TO YEAR.  
FACILITY: KAZANSKII GOSUDARSTVENNYI UNIVERSITET, KAZAN, USSR.

UNCLASSIFIED

PURAKHIN, Yu. N.

Space  
Physiology

SO:JPRS 53801  
12 AUG 71

ELECTRIC ACTIVITY OF LEG MUSCLES DURING STANDING AFTER A 120-DAY  
BEDREST CONFINEMENT

(Article by B. N. Purakhin and Yu. N. Puzikova, Moscow, Kosmicheskaia  
Biologiya i Meditsina, Vol. 5, No. 3, 1971, pp. 64-68, submitted  
12 January 1970)

**Abstract:** Changes in the electrogram (EMG) of 10 healthy subjects were studied following a 120-day bed-rest experiment. The test subjects were classified into three groups: the first, a control group, included four persons; the second and third groups included three men each. The second group of test subjects received pituitrin and POC to prevent changes in water and mineral metabolism. The test subjects in the third group were given Nephrol to prevent deviations in protein metabolism. Electrocardiograms were registered from the tibialis and gastrocnemius muscles of the test subjects as they occupied comfortable and strained positions. The records were made twice before the bedrest experiment and three or four days thereafter. The EMG from the gastrocnemius muscle was registered better during comfortable standing. After the hypokinesia the EMG amplitude exhibited a distinct decrease in the test subjects of the first and third groups and a less marked decrease in the second group of test subjects. This was especially typical of the EMG registered from the gastrocnemius muscle.

The effect exerted on man by conditions created in laboratories, in part similar to the conditions of prolonged spaceflight, is rather widely discussed in the present-day literature: experiments in a water medium, 62- and 72-day hypokinesia, year-long confinement of human subjects in a closed space, etc. (G. I. Kachurin, 1968; A. V. Korobkov, 1968; A. I. Bunaryan, et al., 1969, and others).

USSR

PUPYREV, Ye. I.

"Minimization of Boolean Functions in the Base "Mod 2 Sum," AND, NOT"

Abstraktn. i Struktur. Teoriya Releyn. Ustroistv. [Abstract and Structural Theory of Relay Devices -- Collection of Works], Moscow, Nauka Press, 1972, pp 38-43 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V622 by the author).

Translation: The concept of bisummary normal forms is expanded -- a definition of forms in the base  $\oplus, \wedge, -$ , is introduced. Two simple algorithms are presented for simplification of Boolean functions in this base.

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USSR

UDC 612.766.1-06:613.24

KAKURIN, L. I., PURAKHIN, YU. N., GEORGYEVSKIY, V. S., KATKOVSKIY, B. S.,  
VYSOTSKIY, V. G., CHEREPAKHIN, M. A., USHAKOV, A. S., LARICHEVA, K. A.,  
PETUKHOV, B. N., IVANOV, P. P., MACHINSKIY, G. V., MIKHAYLOV, V. M., POMETOV,  
YU. D., and SMIRNOVA, G. I.

"Locomotor Activity of Man Kept on a Reduced Food Ration"

Moscow, Voprosy Pitaniya, No 3, May/Jun 1971, pp 7-12

Abstract: The combination of drastic limitation in locomotor activity with reduction to a low-calorie diet (down to basal metabolism) was studied in six healthy men 24-35 years of age who were confined to bed for a number of days under conditions of hypokinesia. Pronounced changes were observed in the functions of the cardiovascular, respiratory, nervous, and muscular systems of the body. Tabular data were collected on physiological tremor of closed eyes, maximum physical work fitness, muscle tone dynamics, and the cardiovascular system in the orthostatic position. Asthenia of the nervous system and a slowing down of the biopotentials in the cerebral cortex were observed. Likewise, it was noted that hypokinesia caused disturbances in body coordination and statics. The pulse rate increased and the arterial pulse pressure was

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USSR

KAKURIN, L. I., Voprosy Pitaniya, No 3, May/Jun 1971, pp 7-12

reduced in persons subjected to the orthostatic test. Three persons reached a state of near collapse. These changes were attributed to a significant reduction in the compensating actions of the blood circulation. It was found that after about 10 days, the observed changes gradually decreased in the test subjects. This regression was largely of a functional character and was linked to the "detraining" of the various systems of the body. The authors believe that the severity of the changes in the body functions is directly proportional to the degree of hyperkinesia to which the tested persons were subjected. It is proposed that maintenance of homeostasis requires a certain level of motor activity even with a low-calorie ration.

2/2

USSR

UDC 621.317.361

IRTEGOV, YU. N., ISKANDAROV, F., PETRAKOVA, V. N., PURCHENOV, V. P.,  
SHAMIN, G. F., and ZYKOV, A. A.

"A Device for Determining and Recording the Spectral Characteristics of Complex Signals"

USSR Author's Certificate No 363930 kl G 01 r 23/18, filed 20 Jan 71, published 7 Mar 73 (from RZh Avtomatika Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 73, abstract No 11 A437P)

Translation: A device is proposed for determining and recording the spectral characteristics of complex signals, containing an input apparatus, a group of band-pass filters, a filter interrogation unit, a recording unit with electrodes, and a paper tape transport unit.

To improve the accuracy, the output of the filter interrogation unit is connected through an analog-code converter and recirculator in series, one of the inputs of which is connected to the control unit; the amplitude gradation decoder is connected to the inputs of an arbitrary symbol synthesizer.

In this approach, the control inputs of the synthesizer are connected to the outputs of a vertical symbol scanning unit. The second input of this unit is

USSR

(2)

IRTEGOV, YU. N., et al., USSR Author's Certificate No 363930 k1 G 01 r 23/18

supplied with a signal from a cycle pulse generator. The control inputs of the synthesizer are also connected to the outputs of a horizontal symbol scanning unit, the input of which is connected through an electrode counter (whose input is supplied with a signal from the cycle pulse generator) to the inputs of the control unit. The control inputs of the synthesizer are also connected in parallel through the inputs of an "AND" gate to the decoder of the addresses of electrodes connected to the recording unit. One illustration.

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USSR

AMBARTSUMYAN, R. V., LETOKHOV, V. S., MAKAROV, G. N., PLATOVA, A. G.,  
PURETSKIY, A. A., and TUMANOV, O. A.

"Investigating the Excitation of Oscillatory Levels in  $NH_3$  by Radiation  
of a  $CO_2$  Laser"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, No 3, 1973, pp  
771-784

Abstract: The difficulty in the way of developing a precise explanation of the processes leading to the dissociation and chemical reactions of molecules excited by infrared radiation is the result of the paucity of effective methods for investigating the oscillatory state. In this paper, a direct method is developed for studying the population of oscillatory molecule levels from the intensity of the absorption lines in molecular transitions from the oscillatory state to the excited electronic state. Experiments for studying the population change of oscillatory levels in the  $NH_3$  molecule under the excitation of a  $CO_2$  laser are described, and a diagram of the experimental apparatus is given together with an explanation of its operation. The electron-oscillatory transmission spectrum of ammonia in the 2000-2250 Å range with and without the laser is produced. The theory of the phenomenon is developed and its results compared with the experimental results.

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USSR

AMBARTSUMYAN, R. V.; LETOKHOV, V. S.; MAKAROV, G. N.; PURETSKIY, A. A.,  
Institute of Spectroscopy, Academy of Sciences of the USSR

"Laser Separation of Nitrogen Isotopes"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 17,  
No 2, 20 Jan 73, pp 91-94

Abstract: A report is given on the first highly effective separation of isotopes by the method of selective, two-stage photodissociation of molecules. In the described experiments, nitrogen isotopes  $^{14}\text{N}$  and  $^{15}\text{N}$  were separated in photodissociation of ammonium molecules  $^{14}\text{NH}_3$  and  $^{15}\text{NH}_3$ . The method was proposed by Ambartsumyan and Letokhov (IEEE J. Quant. Electr., QE-7, 305, 1971; Appl. optics, 11, 354, 1972) as a procedure for selective action of radiation on matter and consists in the following: Monochromatic emission of frequency  $\nu_1$  selectively excites oscillatory transition of molecules of only one isotopic composition. The molecules are simultaneously exposed to light of frequency  $\nu_2$  whose quantum energy is sufficient for photodissociation of only the vibrationally excited molecules. A diagram of the experiment is given and explained.

1/1

JSSR

PURIN, B. A., Corresponding Member of Academy of Sciences, Latvian SSR  
"Extraction-Electrochemical Method of Producing High-Purity Metals and Compounds"

Riga, Izvestiya AN Latviyskoy SSR, No. 5, 1971, p. 31-36.

Abstract: A new method is described for producing high-purity metals and compounds, with a wide range of applications. The method is based on the physical-chemical processes of extraction and reextraction in an electric field, together with processes of electrolysis and high-voltage electrodialysis in a multi-phase system. The method involves the use of organic solvent extractors as liquid current-carrying diaphragms separating special chambers in electrolyzers, and the introduction of complex forming reagents. The method can be used in various versions for deep purification of inorganic materials, separation and extraction of a number of metals and their compounds from aqueous solutions. The effectiveness of the method is determined by the composition and concentration of the initial solutions, the possibility of using various organic solvents as separating membranes, the selection of the complex forming reagents used in the diaphragm, maintenance of proper pH of the catolyte and anolyte, and by the direction and strength of the current passing through the extractor.

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1/2 C26  
UNCLASSIFIED  
PROCESSING DATE--16OCT70  
TITLE--THE DIAGNOSTIC SIGNIFICANCE OF CHANGED PROTEIN CONCENTRATION IN THE  
CSF IN HYDROCEPHALY OF CHILDREN -U-  
AUTHOR--(02)-PURIN, V.R., ZHUKOVA, T.P.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S. S. KORSAKOVA, 1970,  
VOL 70, NR 5, PP 693-698  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PEDIATRICS, INFANT DISEASE, HEAD, BLOOD CHEMISTRY, BRAIN,  
BLOOD CIRCULATION, DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1996/0237

STEP NO--UR/0246/70/070/005/0693/0698

CIRC ACCESSION NO--AP0117489

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0117489

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY OF THE CSF IN CONGENITAL HYDROCEPHALY OF CHILDREN AND IN EXPERIMENTAL HYDROCEPHALY OF ANIMALS IN EARLY AGE DEPICTED A CHARACTERISTICAL SIGN OF AN ACTIVE PROCESS: AN INCREASE IN THE CONCENTRATION OF PROTEIN SUBSTANCES IN THE CSF. THE AUTHORS BELIEVE THAT THESE SYMPTOMS ARE RELATED TO A DISTURBANCE OF CEREBRAL CIRCULATION IN CONDITIONS OF STABLE INTRACRANIAL HYPERTENSION AND WITH THE OUTFLOW INTO THE CSF OF PRODUCTS OF NERVOUS TISSUE DESTRUCTION. IN THE TERMINAL STAGES OF OCCLUSIONAL HYDROCEPHALY THERE WAS A REGULAR APPEARANCE OF BLOOD IN THE CSF. IN RECOVERY FROM SUCH STATES THE PROTEIN CONCENTRATION IN THE CSF GRADUALLY ATTAINED THE NORMAL FIGURES.

FACILITY: INSTITUT PEDIATRII AMN SSSR, MOSCOW.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--11SEP 01  
TITLE--DETERMINATION OF THE PH OF THE LAYER NEAR THE ELECTRODE USING A  
METALLIZED GLASS ELECTRODE -U-  
AUTHOR--GERSHOV, V.M., PURINS, B. P  
COUNTRY OF INFO--USSR  
SOURCE--LATV. PSR ZINAT. AKAD. VESTIS, KIM. SER. 1970, (1), 123-4  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--IONIZATION CONSTANT, MEASUREMENT, ELECTROLYTE, GLASS  
ELECTRODE, HYDROGEN ION CONCENTRATION, PH METER  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1989/0534 STEP NO--UR/0464/70/000/001/0123/0124  
CIRC ACCESSION NO--AP0107139  
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107139

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD FOR DETG. THE PH OF AN ELECTROLYTE LAYER NEAR THE ELECTRODES DURING ELECTROLYSIS WAS DEVELOPED. THE ELECTRODES WERE COATED WITH A METAL, BY ELECTROLYTIC DEPOSITION OR SPRAYING, WHICH COULD READILY BE APPLIED AS PARTICLES WITH DIAM. 0.1-0.2MM. THE PH INSTRUMENT READING, WHICH IS DISTORTED BY THE PRESENCE OF THE METAL, CAN BE EXPRESSED AS,  $PH_{SUB0} = K (\Phi_{SUB0} + \Delta \Phi_{SUB1}) + F (\Phi_{ME})$ , WHEN NO SUPERIMPOSED CURRENT IS APPLIED, AND AS,  $PH_{SUB1} = K (\Phi_{SUB0} + \Delta \Phi_{SUB2}) + F' (\Phi_{ME})$ , WHEN AN ELEC. CURRENT IS SUPERIMPOSED, WHERE  $\Phi_{SUB0}$  IS THE POTENTIAL CORRESPONDING TO THE PH OF THE SOLN.;  $\Delta \Phi_{SUB1}$  AND  $\Delta \Phi_{SUB2}$  REPRESENT THE SHIFT OF POTENTIAL DUE TO THE CHANGE OF PH NEAR THE METALLIZED ELECTRODE, BEFORE AND AFTER POLARIZING THE ELECTRODE, RESP.;  $F (\Phi_{ME})$  AND  $F' (\Phi_{ME})$  REPRESENT THE ERROR IN PH INSTRUMENT READING DUE TO THE MAGNITUDE OF THE METAL POTENTIAL AND THE DEGREE OF POLARIZATION, RESP.; AND  $K$  IS A CONST. THEN, IF THE METAL IS DEPOSITED WITH 100PERCENT YIELD ON THE CURRENT USED AND ITS POTENTIAL IS MEASURED WITH SUPERIMPOSITION,  $PH_{SUBP} - PH_{SUB0} = F' (\Phi_{ME}) - F (\Phi_{ME})$ , SINCE  $PH_{SUB1} - PH_{SUB0} = F' (\Phi_{ME}) - F (\Phi_{ME})$ ,  $\Delta \Phi_{SUB1} = \Delta \Phi_{SUB2}$ . BOTH PRACTICAL AND MORE PRECISE METHODS OF MEASURING THE ERRORS IN PH INSTRUMENT READINGS WERE DEVELOPED.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--REGIONAL ARTERIAL PRESSURE IN ARTERIAL OBSTRUCTION OF THE LOWER  
EXTREMITIES -U-  
AUTHOR-(03)-SILINSH, I.A., SKARDS, YA.V., PURINUA, B.A. P  
COUNTRY OF INFO--USSR  
SOURCE--VESTNIK KHIRURGII IMENI I. I. GREKOVA, 1970, VOL 104, NR 4, P  
94-97  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--ARTERY, BLOOD PRESSURE, BLOOD CIRCULATION, DIAGNOSTIC METHODS  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1988/1245 STEP NO--UK/0589/70/104/004/0094/0097  
CIRC ACCESSION NO--AP0106026  
UNCLASSIFIED



2/2 020

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0106026

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MAXIMUM ARTERIAL PRESSURE (MAP) IN THE LEG, THAT COULD BE DETERMINED USING A VOLUMETRIC PRINCIPLE OF RECORDING, IS A VALUABLE DIAGNOSTIC INDEX OF THE REGIONAL BLOOD CIRCULATION IN ARTERIAL OBSTRUCTION OF THE EXTREMITY. MAP IN THE CRURAL PORTION OF THE AFFECTED EXTREMITY IS CONSIDERABLY REDUCED, THE DIFFERENCE BETWEEN BRACHIAL AND CRURAL MAP, AS A RULE, EXCEEDING 15-20 MMHG (ON THE AVERAGE 55.1). CRURAL MAP IN THE AFFECTED EXTREMITIES IS MARKEDLY AND SOMEWHAT CONTINUOUSLY REDUCED DURING THE REACTIVE HYPEREMIA, WHEREAS IT SHOWS GREATER INCREASE THAN IN SOUND PERSONS IN CHANGING THE POSITION FROM HORIZONTAL TO VERTICAL.

UNCLASSIFIED

Surgery

USSR

KENTS, IVAR; PURINYA, BIRUTA; AND YANSON, KHARAL'D

"Bone and Blood Vessel Prosthesis"

Riga, Nauka i Tekhnika, No 8, 1971, pp 25-29

Abstract: Scientists in the field of biomechanics are directing research toward determining the elasticity, deformative properties, and strength of blood vessel walls and bone tissue, and how they change with age and under stress. The possibilities of producing synthetic materials as effective as natural tissue are being investigated, as well as the improvement of prostheses. Blood vessel prostheses are emphasized because of the high incidence of atherosclerosis. Corrugated lavsan prostheses are most widely used in the USSR. Special stretching machines are used to test the ability of reconstructed arteries to withstand arterial pressure; the results are implemented in practice. Experiments are being made to overcome hardening and stoppage in long, narrow prostheses by combined prostheses which reinforce part of the reconstructed artery or vein. A new method of cultivating prostheses in living tissue has been tested on animals, but the practical value of this process is unknown. Experiments are in progress to define the disintegration process of arterial walls in cases of closed trauma. Research on bones is chiefly directed toward studying deformative properties and stability. No adequate substance has yet been found for bone prostheses. Metal or alloys

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USSR

KENTS, IVAR, et al., Nauka i Tekhnika, No 8, 1971, pp 25-29

are unsatisfactory because they do not adapt to the cyclical stress which seems to play a crucial role in bone nourishment.

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Semiconductors and Transistors

USSR

UDC 537.311.33

BALODIS, YA.K., PENTYUSH, E.V., ~~RIBITIS, T.YA.~~, FOMAV, E.A., EGLITIS, V.YA.

"Light Emitting Phenomena Of Mesoplasma In Silicon P-N Junctions In A Pulse Regime"

V sb. Poluprovodniki i ikh primeneniye v elektrotekhn. (Semiconductors And Their Application To Electrical Engineering--Collection Of Works), No 5, Riga, "Zinatne," 1971, pp 159-152 (from RZh:Elektronika i yeye primeneniye, No 1, Jan 72, Abstract No 1B151)

Translation: The time dependence of light emission of mesoplasma in a pulse regime is investigated. The regularities established are evidence that the appearance of light emission preceding an abrupt change of the voltage or current are dependent upon the appearance of mesoplasma. The degree of warming up of the carriers is analyzed as well as the possibility of the appearance of recombination radiation in the "pre-mesoplasma" state and in the time of existence of the mesoplasma. 6 ill. 34 ref. Summary.

1/1

USSR

UDC 621.382.2

EURITIS, T.YA., EGLITIS, V.YA.

"Microplasma Breakdown Of Silicon P-N Junction"

V sb. Poluprovodniki i ikh primeneniye v elektrotekhn. (Semiconductors And Their Use In Electrical Technology--Collection Of Works), No 4, Riga, "Zinatne," 1970, pp 39-66 (from RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11B93)

Translation: A summary is given of the results of investigations of microplasma phenomena in p-n junctions in Si. The temperature dependence is established of microplasma parameters and the relation of the temperature coefficient of the breakdown voltage of all the p-n junctions and the individual microplasma. An assumption is expressed concerning possible mechanisms for storage of the energy of the charge carriers necessary for impact ionization at various temperatures. On the basis of the results obtained a physical model of the microplasma is proposed which corresponds to actual values of the temperature drop and the power being given off into the microplasma. 9 ill. 49 ref. V.M.

1/1

- 77 -

1/2 044 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--INFLUENCE OF TEMPERATURE ON THE LIGHT EMISSION CHARACTERISTICS OF  
MICROPLASMA IN SILICON P,N JUNCTIONS -U-  
AUTHOR-(03)-EGLITIS, V., BALODIS, J., PURITIS, I. P  
COUNTRY OF INFO--USSR  
SOURCE--LATV. PSR. ZINAT. AKAD. VESTIS, FIZ. TEH. ZINAT. SER. 1970, (2),  
20-5  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--PN JUNCTION, SILICON SEMICONDUCTOR, SEMICONDUCTOR PLASMA,  
LIGHT EMISSION, THERMOELECTRIC PROPERTY, CURRENT DENSITY, THERMAL  
IONIZATION, IMPACT IONIZATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--2000/1128 STEP NO--UR/0371/70/000/002/0020/0025  
CIRC ACCESSION NO--AP0124783  
UNCLASSIFIED

2/2 044

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124783

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE OF THE LIGHT EMISSION OF MICROPLASMA IN A SI SHALLOW DIFFUSED P,N JUNCTION ON THE REVERSE VOLTAGE BIAS, THE AMBIENT TEMP., AND THE DYNAMIC COND. OF THE JUNCTION IS INVESTIGATED TO FIND A CORRELATION BETWEEN THE LIGHT EMISSION CHARACTERISTICS AND THE VARIOUS TYPES OF BREAKDOWN IN A P,N JUNCTION. WITH INCREASING TEMP., THE THERMAL IONIZATION CURRENT INCREASES, WHEREAS THE LIGHT EMISSION AS WELL AS THE AVALANCHE CURRENT IN THE REGION OF MICROPLASMA DECREASE AND FINALLY DISAPPEAR AT APPROX. THE SAME TEMP. IN THE REGION OF THERMDELEC. BREAKDOWN, THE INTENSITY OF LIGHT EMISSION SHOWS A PARABOLIC DEPENDENCE ON THE REVERSE CURRENT THROUGH THE P,N JUNCTION. WITH THE INCREASE IN CURRENT NEAR THE ONSET OF THE SECONDARY BREAKDOWN, A GRADUAL TRANSITION FROM IMPACT TO THERMAL IONIZATION IS OBSD. IN THE MICROPLASMA. FACILITY: FIZ. ENERG. INST., RIGA, USSR.

UNCLASSIFIED

1/2 036 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--ISOTHERMAL VOLT AMPERE CHARACTERISTICS OF MESOPLASMA IN SILICON LOW  
VOLTAGE P-N JUNCTIONS -U-  
AUTHOR-(03)-PENTYUSH, E.V., FOMOV, E.A., PURITIS, T. *P*

COUNTRY OF INFO--USSR

SOURCE--LATV. PSR ZINAT. AKAD. VESTIS, FIZ. TEH. ZINAT. SER. 1970, (2),  
26-9

DATE PUBLISHED--70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PN JUNCTION, SEMICONDUCTOR PLASMA, VOLT AMPERE CHARACTERISTIC,  
SILICON SEMICONDUCTOR, PULSE SIGNAL, ISOTHERM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FAME--2000/1144

STEP NO--UR/0371/70/000/002/0026/0029

CIRC ACCESSION NO--AP0124799

UNCLASSIFIED



2/2 036

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124799

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD USING A DOUBLE STEP SQUARE VOLTAGE PULSE APPLIED TO THE P-N JUNCTION IS PROPOSED TO DET. THE ISOTHERMAL V-A CHARACTERISTICS OF MESOPLASMA IN SI P-N JUNCTIONS. SUCH CHARACTERISTICS HAVE 2 REGIONS OF POS. DYNAMIC COND., BETWEEN WHICH LIES AN ALMOST SATD. REGION OF SMALL NEG. DYNAMIC COND. HIGH COND. IN THE LOW VOLTAGE REGION OF THE POS. DYNAMIC COND. IS DUE TO THE LARGE CONCN. OF CURRENT CARRIERS AND THE HIGH TEMP. REGION OF THE MICROPLASMA. THE REASONS FOR THE APPEARANCE OF THE HIGH VOLTAGE REGION OF THE POS. DYNAMIC COND. ARE NOT CLEAR. FACILITY: FIZ.-ENERG. INST., RIGA, USSR.

UNCLASSIFIED

"APPROVED FOR RELEASE: 09/17/2001

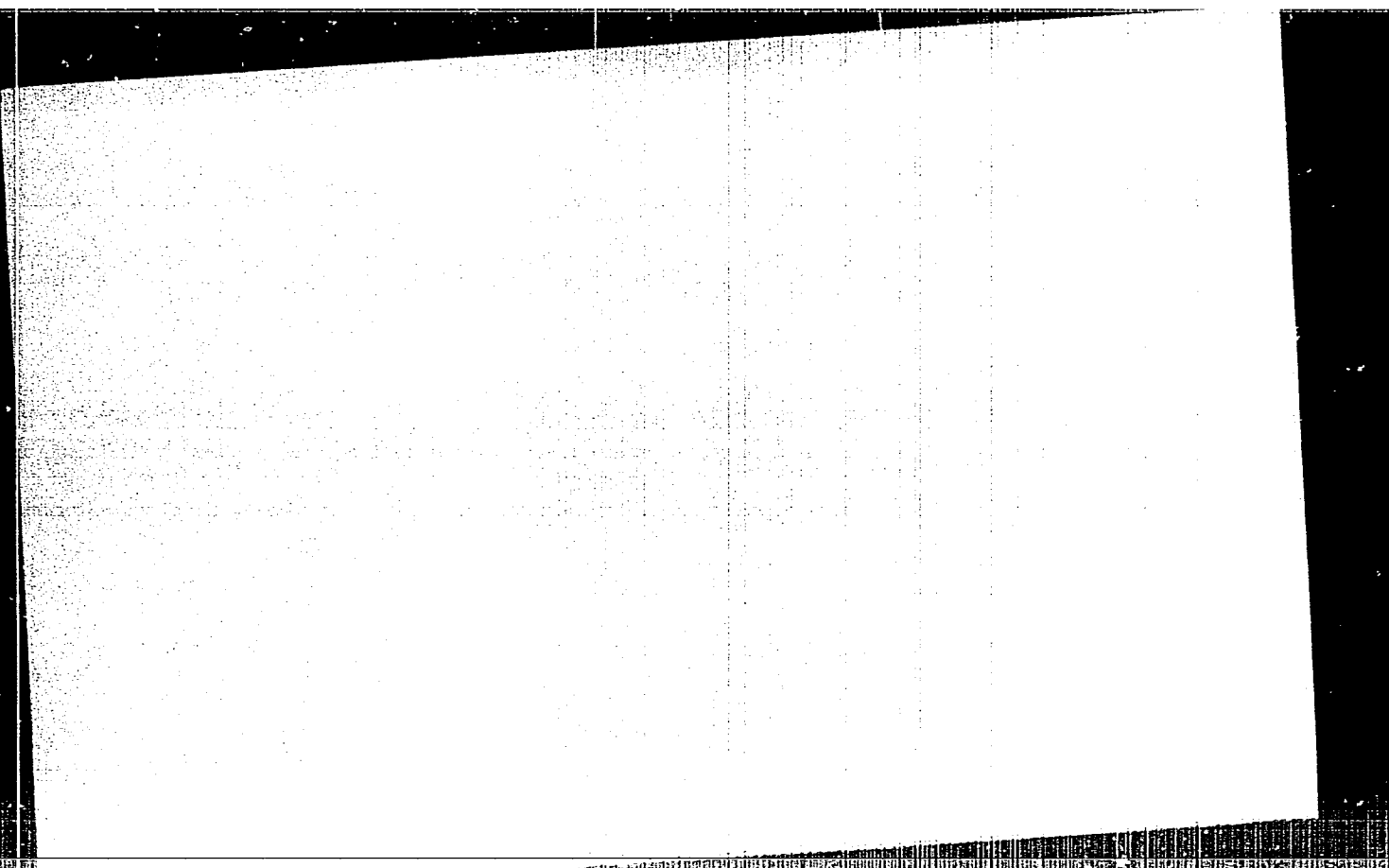
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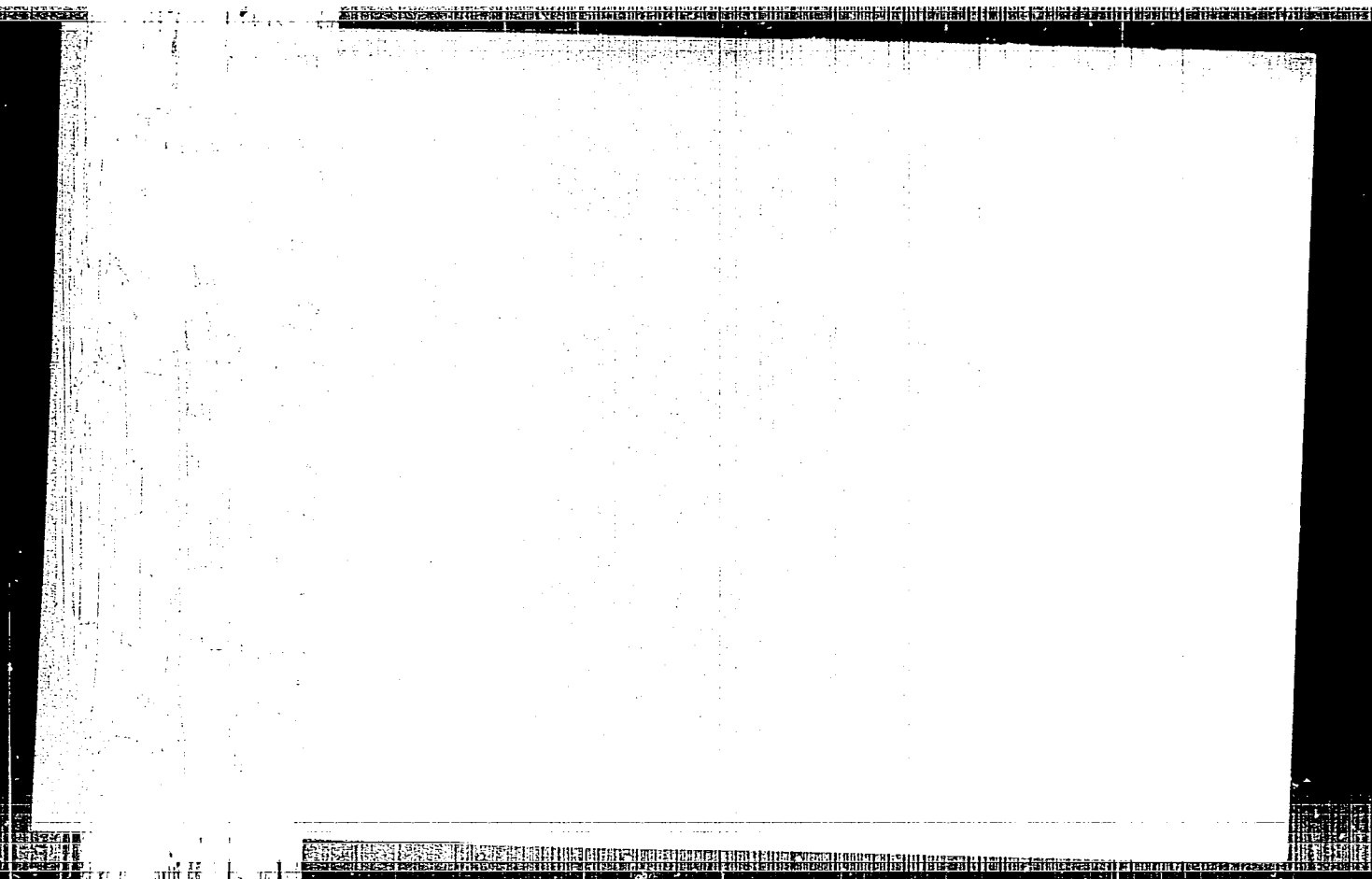
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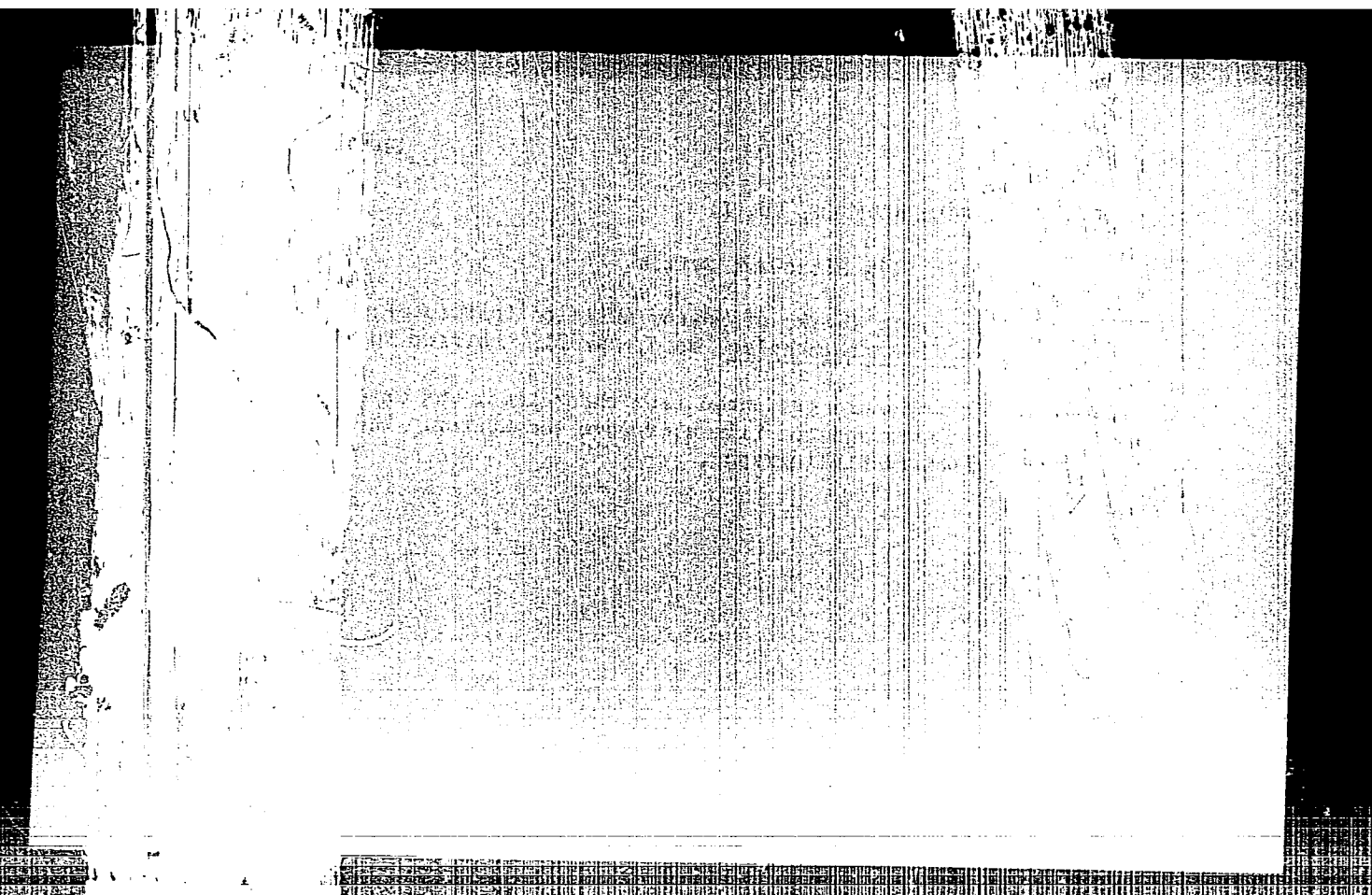
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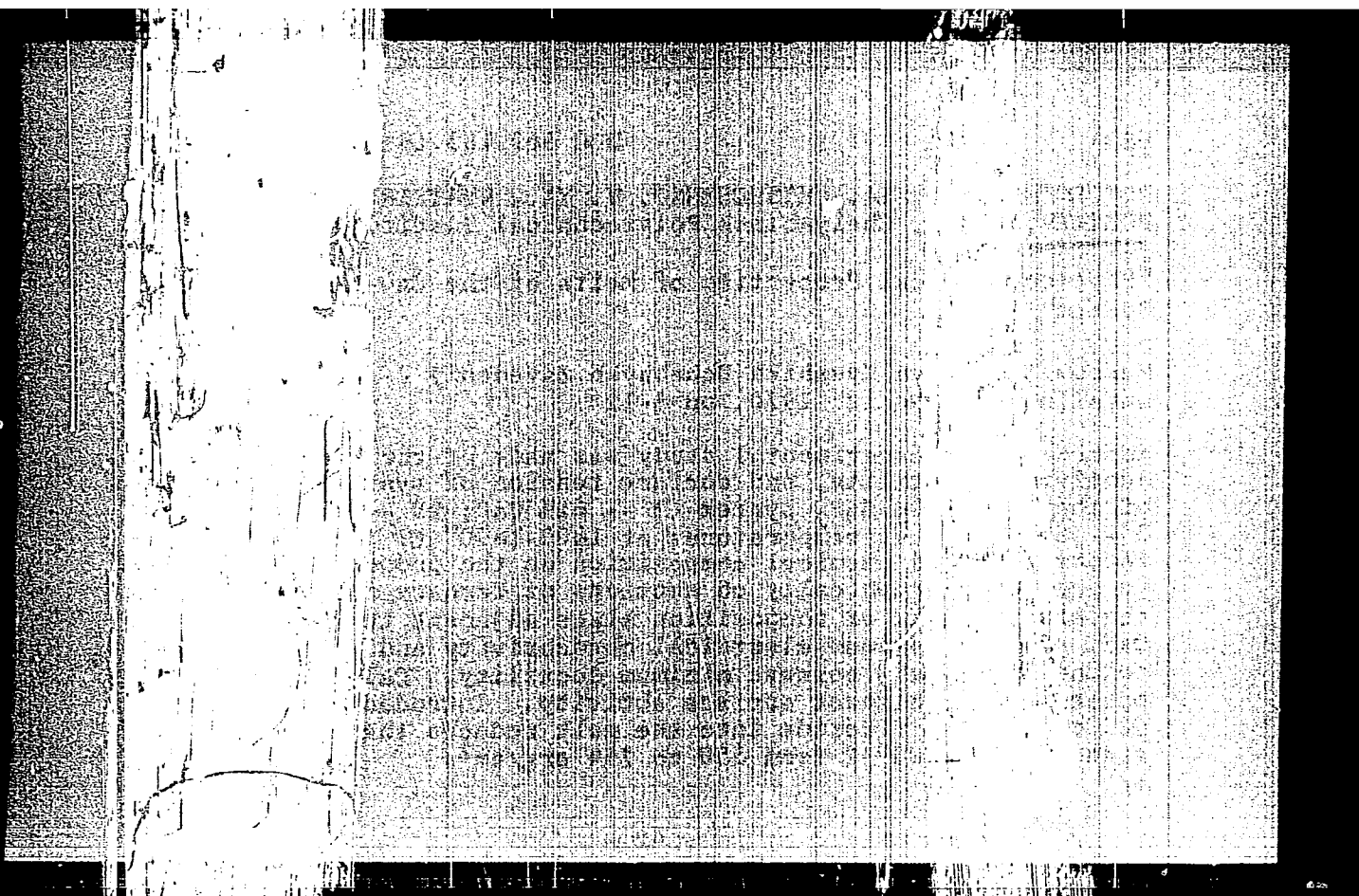


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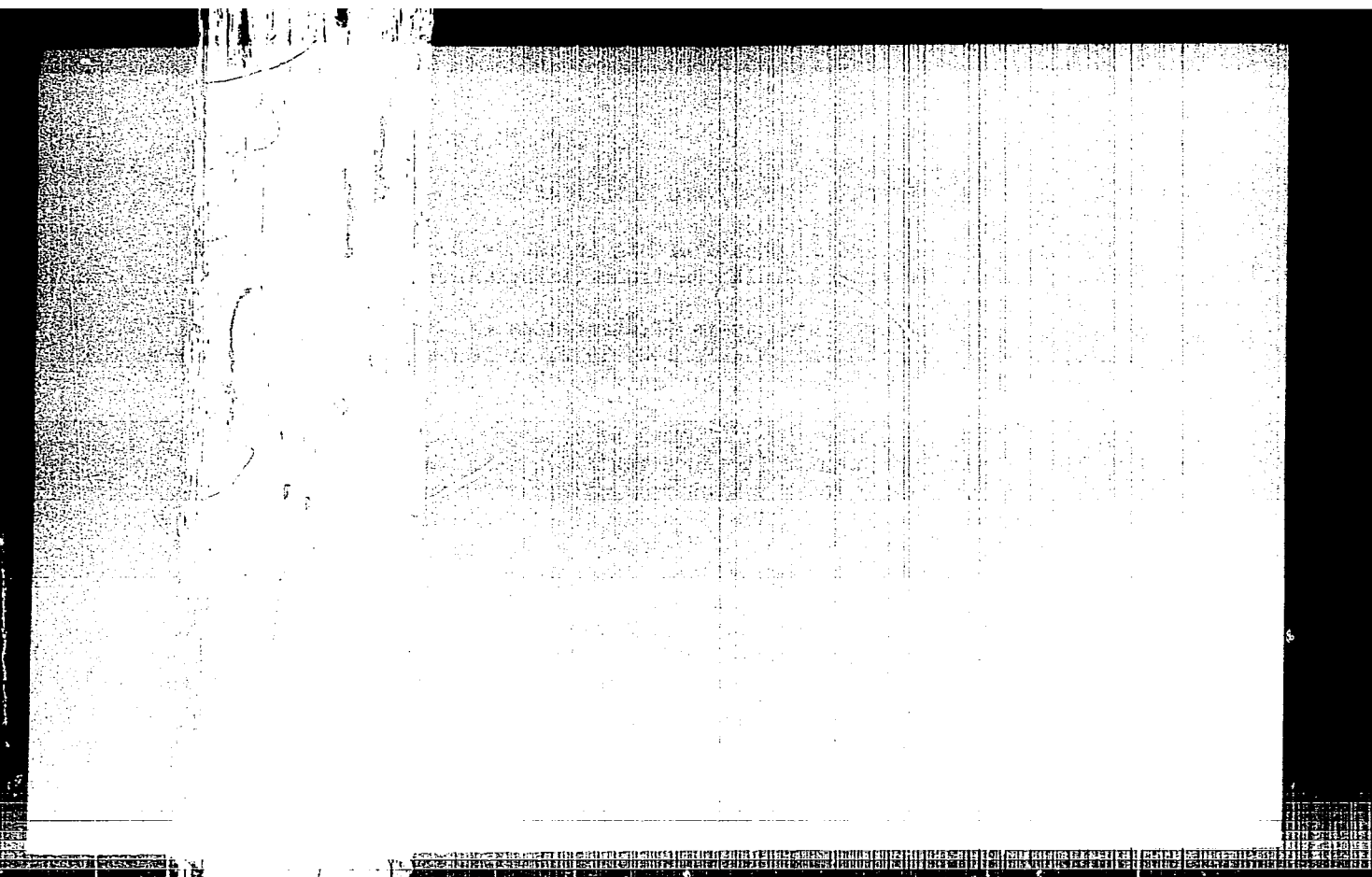


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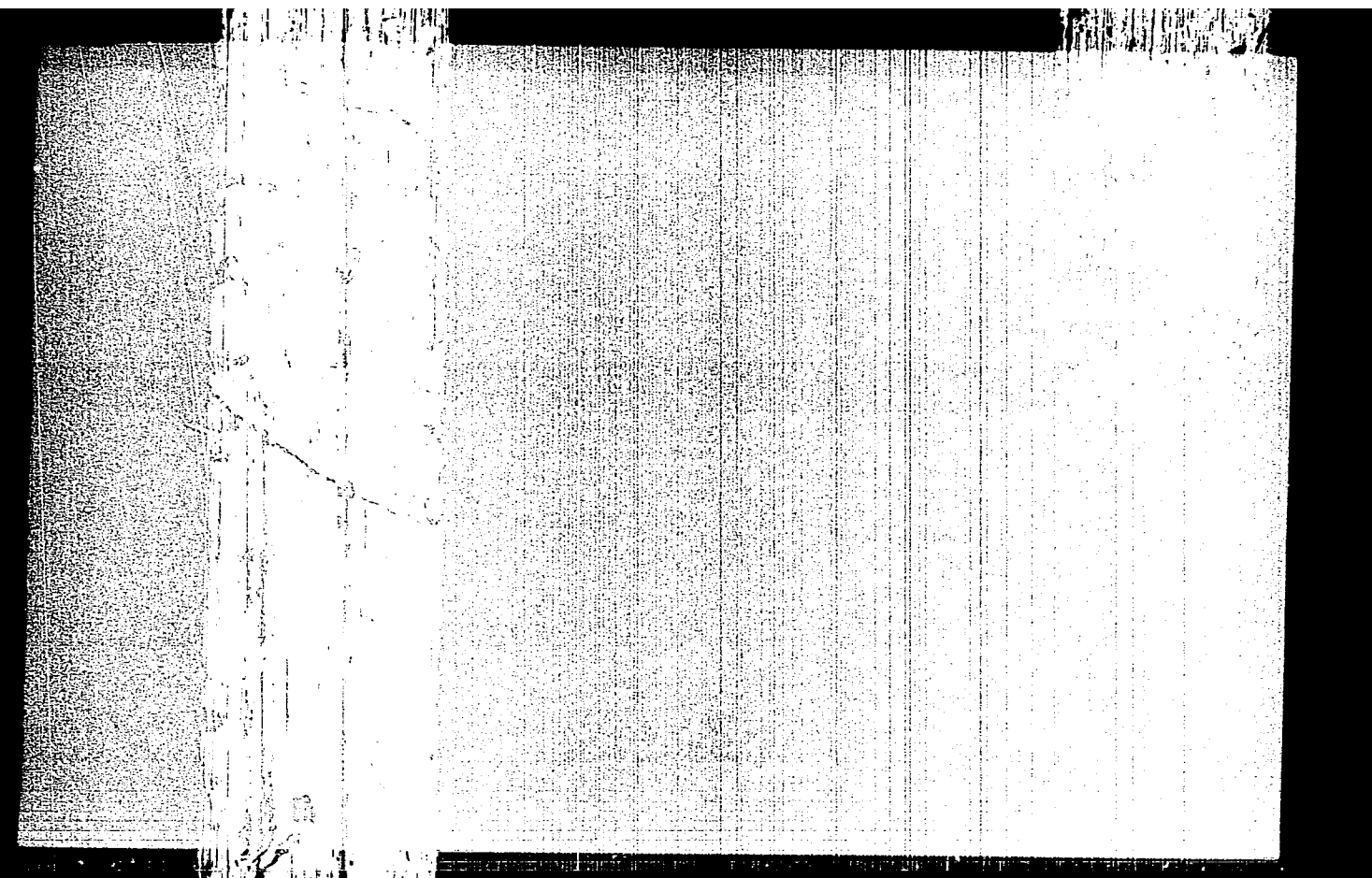


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